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ABSTRACT

A survey of former students from graduate programs in Educational Curriculum and Instruction and in Educational Psychology at Texas A & M University sought to determine graduates' employment patterns and professional profiles and their perceptions concerning the effectiveness of their programs. Fifty-two percent of the graduates responded to mailed questionnaires, providing information on current professional role, membership in professional organizations, publications, presentations, and recognitions. They also rated the necessity and quality of service or instruction provided by the programs. Findings indicated that: (1) The majority of respondents were engaged in professional education; (2) Doctoral recipients were more active in professional associations; (3) Respondents with doctorates were less critical of their programs than were their counterparts; and (4) Where program limitations were seen, graduates perceived the quality of the curriculum associated with certain services/skills to be limited given the relative importance of the skill. Program components found to be in need of revision are listed, and implications of the study are discussed. (JD)

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Graduate Program Evaluation Employing A Status Survey and Matrix Scores

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A follow-up survey was conducted with graduates from four graduate programs in Educational Curriculum and Instruction and Educational Psychology. Status data from the graduates revealed considerable professional activity and productivity of graduates. Additional data from the instrument were combined to reveal perceived program deficiencies. All four programs examined were perceived to be deficient in three or more curricular components by these graduates.

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Survey research may be directed toward identifying relationships among important variables. For example, an investigator may seek an answer to the question, "is post graduation vocational success perceived to be related to the graduate curriculum?" In order to answer this question, more sophisticated techniques and procedures must be implemented then merely measuring current success and attitude of recent graduates. Status surveys on the other hand tend to be descriptive, gathering facts like median income of graduates, availability of resources, etc. The purpose of such surveys is generally to determine present status on variables of interest and not to study inter-relations among these variables (Kerlinger, 1964).

A review of numerous baccalaureate degree follow-up surveys conducted by colleges and departments of education has shown that two types of surveys are typically conducted. One type of survey asks broad questions related to quality of advisement and counseling, personal valuing of specific courses, quality of faculty, quality of curriculum and quality of instructional methods (Univ. of Nebraska, 1976; EPSY-TAMU, 1975; Devlin, 1971). Other surveys representing a status type follow-up have sought biographic information only, for example, teaching fields completed, teaching experience, annual earnings, honors bestowed professional experiences, etc. (Fields, 1976; Hensarling and Pope, 1972; Miller, 1974).

While these surveys illustrate the status function adequately, the relational function of survey research is not as evident in these efforts. However, two-scaled items and open ended items used in other program evaluations (Rosser and Denton, 1977; College of Education Final Report, 1977) appear to accommodate the relational function rather well. Instruments in these latter evaluation projects contained two Likert-type scales referenced to a single item. Information was sought on the value of

different program components on one scale while a rating of quality of service provided for those components was sought on the second scale. These multiple responses enabled an empirical relationship to be determined for each program component.

Purpose

Given the aforementioned literature and available resources, a college level decision was made to conduct a follow-up survey of select graduate education programs at Texas A&M University. This decision, inherently related to regional and national accreditation requirements, ultimately sought to determine program effects and existing limitations in the various programs. More specifically, the survey was designed to:

1. determine the employment patterns and professional profiles of former students from the graduate programs in Educational Curriculum and Instruction and Educational Psychology.
2. obtain perceptions of former students concerning the effectiveness of the graduate curricula in Educational Curriculum and Instruction and Educational Psychology.

Survey methodology includes a variety of approaches (personal interview, telephone survey, mailouts) regardless of the function being served. Past experience with survey research has shown that while personal interviews yield the most complete and valid information, the cost per data point approaches the ratio of 60/1 in comparison to mailout surveys (Smedley and Olsen, 1975). Unfortunately, mailout surveys often suffer from sampling bias because of low response levels. However, representative samples can be achieved if:

1. instrumentation is brief, clear and concise.
2. multiple mailouts are used and continuous updating of addresses is maintained.
3. phone contacts are made with those who have not responded after two mailouts (Rosser and Denton, 1976).

Given these considerations, a decision was made to pursue a mailout survey adhering to the forementioned recommendations.

Subjects

Individuals receiving advanced degrees (M.Ed., M.S. and Ph.D.) from the departments of Educational Curriculum and Instruction (EDCI) and Educational Psychology (EPSY) during the period from May 1975 through May 1977 were selected as the sample for this survey. This sample translates numerically to 279 individuals with departmental compositions being 122 and 157 for EDCI and EPSY, respectively.

Data Procurement

Names of individuals in this sample were identified from a complete listing of graduates on official graduation announcements. Lists containing the name and address of each masters and doctoral recipient were developed from the names listed in this source.

The instrument developed for this survey was accompanied by a solicitation requesting the assistance and cooperation from each graduate. The cover letter and questionnaire were mailed to the graduates on January 19, 1978. Five weeks were allotted for return of the completed instrument from the initial mailing. A second mail-out to non-respondents was initiated February 27, 1978 which contained a second cover letter over the signature of the Dean of the College of Education. A date six weeks hence was established as the final entry date for data received from the mailouts. After four weeks, phone numbers of non-respondents were obtained and phone contact was attempted during March 28-29 from 5:30 p.m. to 8:00 p.m. Individuals who were contacted in this manner were encouraged to return the questionnaire. On the closing date for receipt of questionnaires (April 7, 1978), some 145 completed questionnaires had been returned.

Nearly fifty-two percent of the advanced degree recipients who were identified in the sample responded on the questionnaire. Table 1 summarizes the returns by departmental affiliation and degree earned.

Place Table 1 about here

While the overall percentage of returns failed to reach sixty percent, it is interesting to note that responses from doctoral recipients exceeded seventy percent for both departments. This discrepancy could be a result of a stronger attachment to the college and its programs on the part of doctoral students.

Instrumentation

One instrument containing multiple components was developed to collect perceptional data from the sample of graduate degree holders. The instrument was printed on card stock with the return address and postage label included.

The initial component requested background information on the graduate regarding current professional roles, membership in professional organizations, professional publications, presentations, and recognitions. Component two, General Program Components, consisted of thirty-two items referenced to graduate program services and expected professional skills. Each of these items was referenced to two Likert-type scales. One scale requested a rating of the necessity of service or skill in the graduate program, while the second scale sought a judgment concerning the quality of service or instruction provided at Texas A&M regarding each of the thirty-two items. Alpha coefficients of internal consistency were determined for each of the scales; i.e., necessity scale, .84, and quality scale, .89, both were statistically significant ($p<.05$). Examples of these scales and representative items are presented in figure 1.

Place figure 1 about here

The final component, Comments, consisted of open-response items addressing the strengths, weaknesses and needed changes of the graduate programs administered through the College of Education.

Data Analysis

The statistical procedures used to address the goals of the survey varied substantially. Efforts to determine employment patterns and the professional accomplishments of graduates associated with goal number one were determined in a straight forward descriptive manner. However, the analysis used for goal two was more involved. This technique involved deriving a matrix score from the dual scale responses of each graduate to each item. These matrix scores were subsequently classified in one of three categories based on the perceived difference between the importance and effectiveness scale ratings (Denton, 1978).

The matrix score technique gets its name from organizing the responses for an item into a 5x5 matrix, then continues by combining the matrix values into a total score. To illustrate, consider the response of one graduate to an item on the survey instrument. This individual marked the item very necessary (numerical value = 5) on the necessity scale and ineffective (numerical value = 2) on the effectiveness scale. The resulting tally in the matrix then appeared in the 2x5 cell. This procedure was repeated for each graduate resulting in a matrix with numerous tallies in the various cells. A matrix score for the item then was determined by converting the cell frequencies into percent values, multiplying the resulting cell percentage by the cell's decision-weight and summing the resulting values across all cells. These steps are summarized by the following mathematical expression:

$$\text{Matrix score} = \Sigma\Sigma f\%(Rv - Cv)$$

The f% represents the cell frequency expressed as a percentage and (Rv - Cv) represents the decision-weight for the cell. The numerical values of the row and column for a cell is represented by Rv and Cv, respectively.

This technique is illustrated in figure 2 with a hypothetical set of data.

Place Figure 2 about here

While the magnitude and sign of the matrix score depends on the decision weight used and the distribution of responses, computation of these values does not provide a means to rank the various distributions. Since the foregoing procedure was applied to all items appearing on the dual scaled instrument, an array of matrix scores resulted. A standard based on the number of standard deviation units from an optimum matrix score of zero was used for ranking the responses across items. The standard deviation unit was determined by calculating the mean and standard deviation of all matrix scores across four graduate programs surveyed within the college. The number of matrix scores used in this computation was 128. Moreover, zero was selected as the optimum score because this value occurs when the ideal ratings on each scale (5) are substituted into the decision weight formula (Rv - Cv), i.e., 5 - 5 = 0.

Since the questionnaire yielded information to assess the program components an arbitrary standard to rate the matrix scores was established consisting of three categories, namely, acceptable range (between $\pm$ 1 S.D.). These categories translate into matrix scores of acceptable range (-44 to +44), review range (+/ - 45 to +/ - 88) and revise range (beyond $\pm$ 88). Because these standards were established rather arbitrarily, broad bands were established to categorize the matrix scores.

Findings

Due to the nature of this investigation, results of the various analyses will be organized with respect to the goals addressed by the follow-up evaluation.

Goal 1: Employment Patterns and Professional Profile of Graduates

The professional roles of the respondents are presented in table 2. The majority of graduate degree recipients responding to this questionnaire are engaged in professional education, that is, from 52% (EPSY-D) to 94.4% (EDCI-D). These employment profiles of Ph.D. recipients vary considerably due to the number of graduates from EPSY who become counseling psychologists in agency settings rather than accepting a position in professional education.

Place Table 2 about here

Other data requested of former students were the number of memberships in professional associations, leadership roles in those organizations, and honors bestowed by various groups. Further, information was sought on the number of publications achieved and presentations conducted since completing the graduate degree. These data are summarized in Table 3. As expected, doctoral recipients across both departments were more active, given these criteria, than their counterparts with masters degrees. While the professional activities and productivity show promise for these individuals, the reader is reminded that respondents to this survey has completed their degrees within 2 1/2 years of the survey. Thus, the average number of publications and presentations are relative values indicating the emphasis these individuals, and to some degree their respective departments have placed on these measures of professional productivity.

Place Table 3 about here

Goal 2: Perceptions Regarding Program Effectiveness

Responses from recent graduates varied substantially when the data were grouped by preparation program and converted to matrix scores. Table 4 provides the matrix scores for the 32 components assessed in this survey by departmental program.

Place Table 4 about here

Surveying the matrix scores reveals that both positive and negative values resulted due to the weighting system, (Rv - Cv), used to compute the scores. Negative scores occurred when the necessity of the service/skill was perceived to be of greater importance than the effectiveness of the program to provide quality instruction for the service/skill. Conversely, positive matrix scores resulted when the effectiveness of the program in offering the service/skill was perceived to be greater than the necessity for that particular service/skill.

Summarizing the findings we see from table 4 the masters degree respondents from both EDCI and EPSY were more critical of their programs than their counterparts with doctorates. In all cases where program limitations were found to occur, graduates perceived the quality of the curriculum associated with certain services/skills to be limited given the relative importance of the skill. Some 11 components of the curriculum were perceived to be in need of revision by the graduates from EDCI. These components were:

Program advisement with degree planning
Support for Participating in Professional Conferences
Job Placement
Problem Solving
Teaching
Program Evaluation
Professional Writing
Administration
Supervision
Human Relations with Colleagues
Professional Speaking

Written comments from graduates at the masters level tended either to laud some courses i.e., microteaching, reading coursework and curriculum development or requested additional course work, e.g., statistics, content field methods courses. In addition, a number of masters degree respondents stressed the need for greater emphasis on application types of experiences. The doctoral respondents lauded individuals and the department in general for good teaching. Conversely, a number of individuals suggested more background in applied statistics, computer science and research design as possibilities that should be considered. One additional skill, "how to publish" was mentioned more than once by the doctoral recipients.

Analyses of the responses from EPSY graduates yielded some 8 curricular components perceived to be in need of revision. The components were:

Library Holdings
Job Placement
Support for Participating in Professional Conference
Problem Solving
Program Evaluation
Administration
Human Relations with Colleagues
Professional Speaking

In general, responses from recent graduates to the open-ended items on the questionnaire support the preceding list of program components in need of revision. Both masters and doctoral recipients remarked that additional practica should be included in the EPSY programs; and that library services were substandard. In addition, a number of masters level respondents voiced displeasure with the advice they received in degree planning the value of the final examinations. Conversely a number of remarks commended individuals and the department for fine teaching, especially in the areas of counseling, statistical applications and research design. In general, the only recurring concern at the doctoral level centered on the need for more emphasis in the psychological foundations.

Discussion

Both the status function and relational function of surveys attributed to Kerlinger's (1964) discussion of surveys were addressed in this project. The descriptive information on the professional positions and productivity of graduates aptly fits the status function, while the matrix scores and resulting ratings of program components address the relational function.

The descriptive information in this survey provided a contextual basis for assessing the perceptions of former students regarding the quality of program services and skills. To illustrate, consider the fact that both EDCI and EPSY graduates perceived services associated with job placement to be wanting; yet with the possible exception of EPSY doctoral recipients, a convincing percentage of graduates from both departments were employed in positions in professional education. Thus, this concern regarding job placement takes on a different meaning than if the majority of graduates had been unemployed or employed in non-educational positions. Another example to illustrate the value of descriptive data relates to problem solving skills. Graduates from both departments indicated they were not adequately prepared for problem solving tasks given their responses on the two scale item on the instrument. Subsequent reviews of comments from the instrument and a review of the various curricula have revealed this cognitive skill is not adequately addressed across the various programs.

The findings related to the matrix scores of this investigation reveal substantial differences do exist, at least in the perceptions of recent graduates, regarding the various graduate programs experienced. Yet the degree to which these perceptions reflect actual deficiencies in preparation with respect to the professional environment they are working in is unknown. Thus, the perceived relational deficiencies associated with the matrix scores need to be examined with respect to the professional characteristics and

and productivity of the graduates and other measures of the respective curricula before decisions can be rendered about the quality of the curricula.

REFERENCES AND NOTES

Denton, J. J. Matrix scores, two-scaled questionnaires, and program evaluation. CEDR Quarterly, 1978, 11(1), 14-16.

Devlin, L. G. An analysis and evaluation of the doctoral degree program in industrial education at Texas A&M University. (Doctoral dissertation Texas A&M University, 1973).

EPSY-TAMU Instrument--Evaluation of educational psychology 1975. Texas A&M University, Department of Educational Psychology, College Station, Texas.

Fields, T. Occupational status of health and physical education graduates of Texas A&M University, 1938-1976: a follow-up to the 1963 study. Health & Physical Education, Texas A&M University, 1976.

Follow-up Committee. 1977 report of college of education standing committee on follow-up evaluations. Texas A&M University, College Station, ERIC Document Ed 150-098.

Hensarling, P. R., Pope, W. Follow-up study Texas A&M University teacher education graduates from 1923-1970. College of Education, Texas A&M University, 1972.

Kerlinger, F. N. Foundations of behavioral research. New York: Holt, Rinehart and Winston, Inc., 1965.

Miller, L. E. A five-year follow-up study of the non-teaching agricultural education graduates 1968-73. Agricultural Education Program. Virginia Polytechnic Institute and State University. Blacksburg, Virginia, 1974. ERIC Document ED 112-163.

Rosser, R. S., Denton, J. J. Assessing recent teacher education graduates using a two-scaled instrument. Education 1977, 98(1), 97-104.

Smedley, R. H., Olson, G. H. Graduate follow-up studies: how useful are they? Dallas Independent School District, Dallas, Texas, 1975. ERIC Document ED 109-431.

University of Nebraska. Alumni follow-up report. Teachers College, University of Nebraska, Lincoln. October, 1976.

NECESSITY						EFFECTIVENESS				
My rating of the necessity of this skill is:						My preparation on this skill was:				
5 very necessary	4 necessary	3 undecided	2 unnecessary	1 very necessary	Skills In:	5 very effective	4 effective	3 undecided	2 ineffective	1 very ineffective
___	___	___	___	___	Problem solving	___	___	___	___	___
___	___	___	___	___	Teaching	___	___	___	___	___
___	___	___	___	___	Program Evaluation	___	___	___	___	___

Figure 1
Illustrative Items from the Two-Scaled Survey Instrument

Necessity

Effectiveness	1	2	3	4	5
1					1
2		1		11	1
3			11		
4				1	11
5					

F%(Rv-Cv)
10(1-5) = -40
10(2-2) = 0
20(2-4) = -40
10(2-5) = -30
20(3-3) = 0
10(4-4) = 0
20(4-5) = -20

Matrix ΣΣ(Rv-Cv) = -130
Score

Figure 2

Calculation of Matrix Score from Hypothetical Set of 10 Responses on a Two Scaled Instrument

Table 1

Summary of Return From Follow-Up Survey
of Graduate Programs in EDCI and EPSY

Response by Department	Number Sent	Number Returned	Percent Returned Completed
Ed. Curriculum & Instruction	122	63	51.6
Masters	95	43	45.3
Doctoral	27	20	74.1
Educational Psychology	157	82	52.2
Masters	124	58	46.8
Doctoral	33	24	72.7

Table 2

Current Professional Positions of Graduate Degree Recipients
Expressed as Percentages in Each Department

	Ed. Curriculum & Instruction		Educational Psychology	
Position	M	D	M	D
Teacher (P.S.)	65	11.1	44	---
Teacher (H.E.)	11.6	44.4	3.5	21.7
Counselor (P.S.)	---	---	24.6	---
Counselor (H.E.)	---	---	---	17.4
Consultant	4.7	11.1	3.5	4.4
Administrator (P.S.)	---	11.1	1.8	---
Administrator (H.E.)	---	5.6	3.5	4.4
Supervisor	2.3	5.6	3.5	---
Evaluation Speacialist	---	5.6	1.8	4.4
Researcher	4.7	---	---	---
Other	11.6	5.6	14.0	47.8

M = Masters degree recipient
D = Doctoral degree recipient

P.S. = Public School
H.E. = Higher Education

Table 3

Summary of Professional Activities

Average Number of: Organizational Memberships, Organizational Offices, Publications, Presentations, and Honors Bestowed on Advanced Degree Recipients

Advanced Degree Recipients

Variable/graduate	Ed. Curr. & Instruction		Educational Psychology	
	M	D	M	D
Average # of Memberships	2.40	4.40	2.40	3.30
Average # of Offices	.40	1.20	.50	1.10
Average # of Publications	.26	1.70	.25	2.30
Average # of Presentations	.61	2.70	.44	1.60
Average # of Honors	.28	.17	.12	.70

M = Masters degree recipient
D = Doctoral degree recipient

Table 4

Matrix Scores for Program Services and Professional Skills by Department and Degree

Service/ Skill	Ed. Curr. & Instruction		Educational Psychology	
	M	D	M	D
Program advisement with degree planning	-100**	-65*	-75*	13
Program advisement with advisory committee counsel	- 69*	-41	-48*	9
Final examination: masters thesis and oral	(100)	(100)	(107)	(50)
Final examination: masters oral exam	15	(250)	28	(0)
Final examination: doctoral prelims	(33)	25	(120)	-13
Final examination: dissertation defense	(71)	18	(100)	35
Helpfulness of principal advisor	-63*	-17	-40	-17
Helpfulness of departmental faculty	-63*	-33	-50*	-13
Library holdings	-80*	-94**	-102**	-126**
Job placement	-91**	-60*	-89**	-125**
Financial support	-32	-44	-65*	-50*
Support for participating in professional conf.	-44	-143**	-54*	-109**
Computer services	16	-33	(-75)	-18
Research laboratories	-53*	25	(-6)	-72*
Research equipment	-18	(-14)	(-23)	-83*
Access to original sources of data	-21	-46*	-67	-88*
Problem solving	-115**	-76*	-107**	-59*
Teaching	-90**	-38	-71*	-32
Program evaluation	-100**	-44	-110**	-68*
Professional writing	-109**	-35	-55*	-67*
Administration	-122**	6	-78*	-111**
Supervision	-123	-6	-82*	-50*
Research: experimental design	-44	-41	5	0
Research: literature searches	0	-76*	-67*	-38
Research: statistical applications	0	-44	-43	-26
Research: sampling	-22	-50*	-26	-48*
Research: data presentation	-50*	-69*	-55*	-43
Research: documentation of findings	0	-40	-29	-35
Human relations with students and clients	-85*	-78*	-87*	-46*
Human relations with colleagues	-105**	-39	-94**	-63*
Professional speaking	-140**	-117**	-71*	-100**
Scholarship	-72*	-39	-48*	-46*

M = masters degree
D = doctoral degree
( ) low number of responses
* denotes scores occurring in review category
** denotes scores occurring in revise category